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VARIETIES OF AVOCADOS AND CARAMBOLAS RESISTANT TO CARIBBEAN FRUIT FLY

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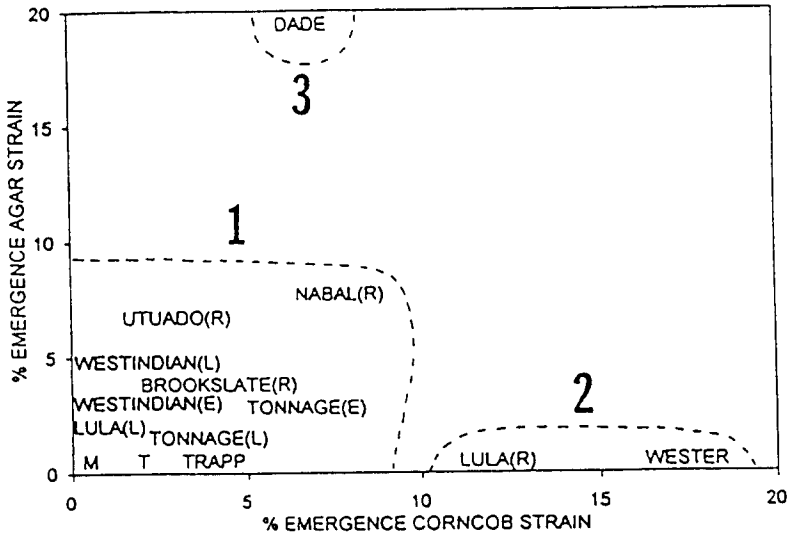
All cultivars of avocados and carambolas currently shipped from Florida are considered equally good hosts of the Caribbean fruit fly by some importing states and countries. This is the first time resistant cultivars of these fruits have been identified and suggested for growing or breeding as part of an IPM systems approach to manage the pest.

Seventeen avocado cultivar clones or seedlings from the Miami National Clonal Germplasm Repository were bioassayed in the laboratory in 1993 for antibiosis to immature stages of two strains of colony-reared Caribbean fruit flies. Fruits were harvested in conventional marketable condition and bioassayed within an hour of harvest. Bioassay consisted of placement of 10 eggs of either strain directly on the cut face of a fresh slice and incubation within a cup at 26°C and saturated relative humidity.

Fourteen of the cultivars tested were highly resistant based on cluster analysis calculated from emergence percentages of each strain of flies relative to emergence from controls of artificial diets.

Fruits of five clones and 11 seedlings of carambolas from various crosses from the same source as above were bioassayed in 1993-94 with a method similar to that used with the avocados except only one strain of flies was used. Ten cultivars and seedlings which supported 0-25.2% emergence of adults were considered highly resistant.

We suggest that highly resistant avocados and carambolas would be good candidates for further investigations into their host status and that they be promoted to breeders and growers.



Cluster analysis of avocados based on percentage of emergence of Caribbean fruit flies. 1, high resistance; 2, intermediate resistance; 3, low resistance; T, 'Tenerife' late harvest; M, 16 cultivars and seedlings from which no flies emerged; (E), early harvest; (L), late harvest; (R), ripe.

Carambolas bioassayed for resistance to Caribbean fruit fly and mean (SEM) percentage adult emergence, relative to controls, from fruits artificially infested with eggs in the laboratory. lr, low resistance; hr, high resistance.

Cultivar or Seedling	Emergence, %
'Golden Star' x 'Fwang Tung', seedling 7	61.0 (16.4) lr
'B-10'	43.0 (9.0) lr
'Hew-1'	42.8 (13.3) lr
'Fwang Tung', late harvest	42.0 (11.5) lr
'Arkin', late harvest	42.0 (6.6) lr
'Fwang Tung', early harvest	41.6 (17.2) lr
'Golden Star' x 'Fwang Tung', seedling 5	40.0 (16.7) lr
'Golden Star', selfed seedling	32.0 (13.6) lr
'Arkin', early harvest	25.2 (7.2) hr
'Golden Star' x 'Fwang Tung', seedling 1	24.6 (5.0) hr
'Dah Pon' x open pollinated, seedling 1	24.0 (9.3) hr
'Golden Star' x 'Fwang Tung', seedling 3	21.6 (11.3) hr
" " " 2	16.4 (5.0) hr
'Demak'	13.8 (7.5) hr
'Golden Star' x 'Fwang Tung', seedling 4	11.0 (6.0) hr
'Dah Pon' x 'Fwang Tung', seedling	5.4 (5.4) hr
'Golden Star' x 'Fwang Tung', seedling 6	4.2 (4.2) hr
'Dah Pon' x open pollinated, seedling 2	0 hr